

**ABSTRACT OF THE DISCLOSURE**

A fuel based thermal management system includes a fuel stabilization system which permits the fuel to exceed the traditional coking temperatures. High temperature components are arranged along the fuel flow path such that even at the higher operating temperatures the fuel operates as a heat sink to transfer heat from high temperature components to the fuel. An optimal high temperature ester-based oil permits an oil-loop to exceed current oil temperature limits and achieve a high temperature to permit efficient rejection of heat to the fuel late in the fuel flow path.

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